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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,699	12/01/2003	Francois X. Prinz	24317/82501	2551

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EXAMINER

BEHM, HARRY RAYMOND

ART UNIT	PAPER NUMBER
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2838

DATE MAILED: 11/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/725,699	PRINZ ET AL.	
	Examiner	Art Unit	
	Harry Behm	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,3,5-14 and 16-18 is/are pending in the application.
- 4a) Of the above claim(s) 15 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2 and 3 is/are allowed.
- 6) ☒ Claim(s) 5,6,8-14 and 16 is/are rejected.
- 7) ☒ Claim(s) 7,17 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I, claims 2-3, 5-14 and 16-18, over the telephone on 11/1/06 is acknowledged. Claim 15 has been withdrawn from consideration.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, as in Claim 14, wherein if either comparator detects that the output is lower than the reference voltage it switches the up-down counter in up mode, and if the reference voltage is lower, it switches the up-down counter in down mode must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

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application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Response to Arguments

Applicant's arguments with respect to claims 5-6, 8-14 and 16 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

Claim 5 is objected to because of the following informalities: "the stored duty cycle" lacks antecedent basis. Appropriate correction is required.

Claim 7 is objected to because of the following informalities: "the stored duty cycle" lacks antecedent basis. Appropriate correction is required.

Claim 9 is objected to because of the following informalities: "the output voltage" and "the duty cycle" lack antecedent basis. Appropriate correction is required.

Claim 10 is objected to because of the following informalities: "the speed" lacks antecedent basis. Appropriate correction is required.

Claim 13 is objected to because of the following informalities: it is unclear what "it" refers to.

Claim 14 is objected to because of the following informalities: "the reference voltage" is unclear whether Applicant intends to claim 'the same reference voltage for both comparators' or 'its reference voltage'.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 5-6, 8-14 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Novotny (US 4,387,399).

With respect to Claim 5, Novotny discloses a method for producing a desired output voltage (Fig. 1 Uref) comprising: storing in memory (Fig. 3 VRZ), an indication (Fig. 3 Az) of a pulse (Fig. 3 TL) duty cycle needed for a varying load [load connected to output voltage Ug]; monitoring the load (Fig. 3 Ug'); altering a stored duty cycle (Fig. 3 VWZ) at a first frequency (Fig. 3 TS) to produce the desired output voltage (Fig. 3 Ug equal to Uref) based upon the indication (Fig. 3 Az); and if a change (Fig. 3 Ug') in the load is detected (Fig. 3 KS2 changes), changing the frequency (Fig. 3 VRZ input Ez) of alteration [KS2 rate instead of TS] of the duty cycle; wherein the indication comprises a digital counter (Fig. 3 VRZ), and wherein changing the frequency of alteration of the duty cycle comprises changing the frequency of updating (Fig. 3 Ez) the digital counter (Fig. 3 VRZ).

With respect to Claim 6, Novotny discloses the method of claim 5 wherein monitoring the load comprises the use of 2 or more comparators (Fig. 3 KS1,KS2).

With respect to Claim 8, Novotny discloses the method of claim 6, wherein the two or more comparators have different references (Fig. 3 Uref, Uref').

With respect to Claim 9, Novotny discloses a voltage converter (Fig. 3) that produces an output voltage (Fig. 3 Ug) for a load [connected to Ug], comprising: a digital controller (Fig. 3) that controls an output voltage (Fig. 3 Ug) of analog circuitry (Fig. 1 TL'); a numerical value (Fig. 3 Az) stored in a memory of the converter; a duty cycle generator (Fig. 3 VWZ) that utilizes the numerical value (Fig. 3 Az) to alter a duty cycle (Fig. 3 RS2 Q) of the analog circuitry (Fig. 3 TL') in response to changes in the load; a first comparator (Fig. 3 KS1) that compares the output voltage (Fig. 3 Ug') to the reference voltage (Fig. 3 Uref) at a first rate (Fig. 3 TS); a second comparator (Fig. 3 KS2) that compares the output voltage (Fig. 3 Ug') to the reference voltage (Fig. 3 Uref) at a second rate [slower rate when blocked by UG1], wherein the numerical value is updated (Fig. 3 Ez) based on a comparison [KS2] at the first [not blocking] or second rate [blocking].

With respect to Claim 10, Novotny discloses the voltage converter of claim 9 further comprising an algorithm generator (Fig. 3 UG1) that selects a speed (Fig. 3 Ez) that the numerical value (Fig. 3 Az) is updated.

With respect to Claim 11, Novotny discloses the voltage converter of claim 9 wherein the digital controller [using AND UG1] selects either the first or second rate.

With respect to Claim 12, Novotny discloses the voltage converter of claim 9 wherein when either comparator (Fig. 3 KS1,KS2) detects that the output voltage (Fig. 3 Ug') is higher than the reference voltage (Fig. 3 Uref,Uref'), it decreases the duty cycle [counts down or counts slower].

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With respect to Claim 13, Novotny discloses the voltage converter of claim 9 wherein when either comparator (Fig. 3 KS1,KS2) detects that the output voltage (Fig. 3 Ug') is lower than the reference voltage (Fig. 3 Uref,Uref') it increases the duty cycle [counts up or counts faster].

With respect to Claim 14, Novotny discloses the voltage converter of claim 9 wherein the numerical value (Fig. 3 Az) is stored in an up-down counter (Fig. 3 VRZ) in the memory, and wherein if either comparator (Fig. 3 KS1) detects that the output is lower than the reference voltage (Fig. 3 Uref) it switches the up-down counter (Fig. 3 VRZ) in up mode (Fig. 3 Evr), and if the reference voltage is lower, it switches the up-down counter in down mode.

With respect to Claim 16, Novotny discloses a digital controller of a voltage regulator (Fig. 3) that produces an output voltage (Fig. 3 Ug) for a load, comprising: an up/down counter (Fig. 3 VRZ) that stores a numerical value (Fig. 3 Az) used to alter a duty cycle of the controller driving (Fig. 3 RS2) a transistor/switch (Fig. 3 TL'); a duty cycle generator (Fig. 3 VWZ) that utilizes the numerical value (Fig. 3 Az) to alter the duty cycle in response to changes (Fig. 3 Ug') in the load; and an algorithm generator (Fig. 4 UG1) that produces an algorithm [block or pass] that alters the rate (Fig. 3 Ez) of change of the duty cycle.

Allowable Subject Matter

The indicated allowability of claim 5 is withdrawn in view of the newly discovered reference(s) to Novotny (US 4,387,399). Rejections based on the newly cited reference(s) follow.

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The following is an examiner's statement of reasons for allowance, if the objections stated above are overcome:

With respect to Claim 2, the prior art does not disclose or suggest, in combination with the limitations of the base claim and any intervening claims, primarily, wherein if the first comparator detects that the output voltage is higher than the reference voltage, the algorithm generator affecting the input of entries from the digital counter into the duty cycle generator, thereby adjusting the rate of change for modifying the duty cycle.

With respect to Claim 7, the prior art does not disclose or suggest, in combination with the limitations of the base claim and any intervening claims, primarily, wherein if a change in the load is detected, changing the frequency of alteration of the duty cycle, wherein if the load increases, the frequency of alteration is increased, thereby minimizing a dip in the output voltage.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

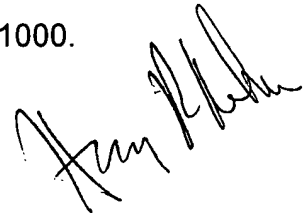
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry Behm whose telephone number is 571-272-8929. The examiner can normally be reached on Business EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on 571-2721989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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SUPERVISORY PATENT EXAMINER